We Claim:

1. A method of improving weight gain of a growing ruminant comprising:

providing the ruminant one or more feed ingredients; and

providing the ruminant an α-amino acid analog selected from the group consisting of 2-hydroxy-4-(methylthio)butanoic acid, and salts, esters, amides, ethers, diesters, ester/ethers, oligomers, metal chelates, and anion salts thereof; and the salt, ester, amide, ether, oligomer, metal chelate, and anion salt analogs of methionine;

wherein the assortment and composition of said feed ingredients are such that the amounts thereof which can be consumed by the growing ruminant in one day can collectively satisfy the ruminant's daily nutrient requirements, and exceed its daily maintenance energy requirements; provided that such assortment and composition may not necessarily satisfy the growing ruminant's methionine requirements; and

wherein the salts of 2-hydroxy-4-(methylthio)butanoic acid are selected from the group consisting of ammonium, magnesium, lithium, sodium, potassium, and zinc.

2. The method of claim 1, wherein the α-amino acid analog is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, n-pentyl, isopentyl, -hexyl, and isohexyl esters of 2-hydroxy-4-(methylthio)butanoic acid.

3. The method of claim 1, wherein the α-amino acid analog is selected from the group consisting of methylamide, dimethylamide, ethylmethylamide, butylamide, dibutylamide, butylmethylamide, alkyl ester of N-acyl methioninates, and

alkyl N-acetyl methioninate amides of 2-hydroxy-4-(methylthio)butanoic acid.

4. The method of claim 1, wherein the α-amino acid analog is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, butyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, pentyl, n-pentyl, isopentyl, hexyl, and isohexyl ethers of 2-hydroxy-4-(methylthio)butanoic acid.

5. The method of claim 1, wherein the ester group of the ester/ether of 2-hydroxy-4-(methylthio)butanoic acid is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, n-pentyl, isopentyl, n-hexyl, and isohexyl esters and the ether group of the ester/ether of 2-hydroxy-4-(methylthio)butanoic acid is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, n-pentyl, isopentyl, n-hexyl, and isohexyl ethers.

6. The method of claim 1, wherein the α-amino acid analog is selected from the group consisting of zinc, copper, cobalt, manganese, calcium, iron, or magnesium chelates of 2-hydroxy-4-(methylthio)butanoic acid.

7. The method of claim 1, wherein the metal chelate of 2-hydroxy-4-(methylthio)butanoic acid comprises the zinc chelate.

8. The method of claim 8, wherein the molar ratio of 2-hydroxy-4-(methylthio)butanoic acid to zinc is between about 1.5:1 to about 2.5:1.

9. The method of claim 1, wherein the anion salt of 2-hydroxy-4-(methylthio)butanoic acid is selected from the group consisting of zinc, copper, cobalt, manganese, calcium, iron, or magnesium anion salts.

10. The method of claim 9, wherein the anion salt of 2-hydroxy-4-(methylthio)butanoic acid comprises the zinc anion salt.

11. The method of claim 10, wherein the ratio of 2-hydroxy-4-(methylthio)butanoic acid to zinc is between about 0.5:1 to about 1.5:1.

12. The method of claim 1, wherein the α-amino acid analog comprises the isopropyl ester of 2-hydroxy-4-(methylthio)butyric acid.

13. The method of claim 1, wherein the α-amino acid analog comprises 2-hydroxy-4-(methylthio)butyric acid.

14. The method of claim 1, wherein the α-amino acid analog is selected from the group consisting of ammonium, magnesium, calcium, lithium, sodium, potassium, and zinc salts of methionine.

15. The method of claim 1, wherein the α-amino acid analog is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, n-pentyl, isopentyl, -hexyl, and isohexyl esters of methionine.

16. The method of claim 1, wherein the α-amino acid analog is selected from the group consisting of methylamide,

dimethylamide, ethylmethylamide, butylamide, dibutylamide, butylmethylamide, alkyl ester of N-acyl methioninates, and alkyl N-acetyl methioninates of methionine.

17. The method of claim 1, wherein the α-amino acid analog is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, n-pentyl, isopentyl, -hexyl and isohexyl ethers of methionine.

18. The method of claim 1, wherein the α-amino acid analog is selected from the group consisting of zinc, copper, cobalt, manganese, calcium, iron, or magnesium chelates of methionine.

19. The method of claim 1, wherein the metal chelate of methioinine comprises the zinc chelate of methionine.

20. The method of claim 19, wherein the molar ratio of methionine to zinc is between about 1.5:1 to about 2.5:1.

21. The method of claim 1, wherein the α-amino acid analog is selected from the group consisting of zinc, copper, cobalt, manganese, calcium, iron, or magnesium anion salts of methionine.

22. The method of claim 21, wherein the anion salt of methionine comprises the zinc anion salt of methionine.

23. The method of claim 22, wherein the ratio of methionine to zinc is between about 0.5:1 to about 1.5:1.

24. The method of claim 1, wherein the analog of methionine is selected from the group consisting of the isopropyl ester,

and tertiary butyl ester of methionine.

25. The method of claim 1, wherein the feed ingredients comprise fat.

26. The method of claim 1, further comprising a lysine analog.

27. The method of claim 26, wherein the lysine analog is selected from a the group consisting of lysine salts, amides, esters, ethers and oligomers.

28. The method of claim 27, wherein the lysine analog and the methionine analog are provided in a manner such that the ratio of the lysine analog to methionine analog available for absorption by the ruminant is between about 1:1 to about 5:1.

29. The method of claim 1, wherein the feed ingredients comprise urea.

30. The method of claim 1, wherein the feed ingredients comprise corn.

31. The method of claim 1, wherein the feed ingredients comprise forage.

32. The method of claim 31, wherein the forage is selected from the group consisting of grass, alfalfa, hay, haylage, or silage.

33. The method of claim 1, wherein the combination of feed ingredient and an α-amino acid analog are made available to

the ruminant in the late summer through winter seasons.

34. The method of claim 1, wherein the growing ruminant is selected from growing beef or dairy cattle.

35. The method of claim 1, wherein the growing ruminant weighs less than 1000 pounds.

36. The method of claim 1, wherein the growing ruminant weighs between about 200 to about 1000 pounds.

37. The method of claim 1, wherein the growing ruminant weighs between about 400 to about 1000 pounds.

38. The method of claim 1, wherein the growing ruminant weighs between about 400 to about 800 pounds.

39. The method of claim 1, wherein the growing ruminant is a creep-fed ruminant weighing between about 200 to about 400 pounds.

40. The method of claim 1, wherein the α-amino acid analog is provided to the ruminant in an amount such that the ruminant consumes between about 0.1 and 50 grams of the α-amino acid analog per day.

41. The method of claim 1, wherein the α-amino acid analog is provided to the ruminant in an amount such that the ruminant consumes between about 1 and 25 grams of the α-amino acid analog per day.

42. The method of claim 1, wherein the α-amino acid analog is

provided to the ruminant in an amount such that the ruminant consumes between about 5 and 20 grams of the α-amino acid analog per day.

43. The method of claim 1, wherein the α-amino acid analog is provided to the ruminant in an amount such that the ruminant consumes between about 10 and 18 grams of the α-amino acid analog per day.

44. The method of claim 1, wherein said feed ingredient comprises at least 50% forage ingredients.

45. The method of claim 1, wherein said feed ingredient comprises at least 65% forage ingredients.

46. The method of claim 1, wherein said feed ingredient comprises at least 80% forage ingredients.

47. The method of claim 1, wherein said feed ingredient comprises at least 80% forage ingredients.

48. The method of claim 1, wherein said feed ingredient comprises at least 85% forage ingredients.

49. The method of claim 1, wherein said feed ingredient further comprises molasses.

50. The method of claim 49, wherein at least 0.5 pounds per day of molasses is provided to the ruminant.

51. The method of claim 49, wherein 1 to 7 pounds per day of molasses is provided to the ruminant.

52. The method of claim 49, wherein the ratio of forage to molasses feed ingredients provided to the growing ruminant is between about 20:1 to about 1.5:1.

53. The method of claim 49, wherein the ratio of forage to molasses feed ingredients provided to the growing ruminant is between about 10:1 to about 2:1.

54. The method of claim 49, wherein the ratio of forage to molasses feed ingredients provided to the growing ruminant is between about 7:1 to about 2.5:1.

55. The method of claim 1, wherein the growing ruminant is a ruminant selected from beef or dairy cattle.

56. The method of claim 1, wherein the ration is top-dressed with the α-amino acid analog.

57. The method of claim 1, wherein the ration is top-dressed with the α-amino acid analog.

58. The method of claim 1, wherein the feed ration is formulated to provide between about 4 and about 30 pounds of feed ingredients and between about 0.1 to about 50 grams of α-amino acid analog per day.

59. The method of claim 58, wherein the feed ration is provided to a growing ruminant weighing between about 400 and about 1000 pounds.

60. The method of claim 58, wherein the feed ration is formulated to provide between about 8 and about 24 pounds of

feed ingredients per day.

61. The method of claim 60, wherein the feed ration is provided to a growing ruminant weighing between about 400 and about 800 pounds.

62. The method of claim 58, wherein the feed ration is formulated to provide between about 4 and about 12 pounds of feed ingredients per day.

63. The method of claim 62, wherein the feed ration is provided to a growing ruminant weighing between about 200 and about 400 pounds.

64. The method of claim 1, wherein the feed ingredients collectively satisfy the nutritional requirements for methionine.

65. The method of claim 1, wherein the feed ingredients collectively are deficient in satisfying the nutritional requirements for methionine.

66. The method of claim 1, further comprising determining the energy maintenance requirements of the growing ruminant.

67. A method of improving weight gain of a growing ruminant comprising:

providing the ruminant one or more feed ingredients, and

providing the ruminant an α-amino acid analog selected from the group consisting of the calcium salt of 2-hydroxy-4-(methylthio)butanoic acid.

wherein the combination of feed ingredients comprise at

least 80% forage, and

wherein the assortment and composition of said feed ingredients are such that the amounts thereof which can be consumed by the growing ruminant in one day can collectively satisfy the ruminant's daily nutrient requirements, and exceed its daily maintenance energy requirements; provided that such assortment and composition may not necessarily satisfy the growing ruminant's methionine requirements.

68. The method of claim 67, wherein the calcium salt of 2-hydroxy-4-(methylthio)butanoic acid is provided to the ruminant in an amount such that the ruminant consumes between about 0.1 and 50 grams of the α-amino acid analog per day.

69. The method of claim 67, wherein the calcium salt of 2-hydroxy-4-(methylthio)butanoic acid is provided to the ruminant in an amount such that the ruminant consumes between about 1 and 25 grams of the α-amino acid analog per day.

70. The method of claim 67, wherein the growing ruminant weighs between about 400 to about 800 pounds.

71. The method of claim 67, wherein the growing ruminant is a creep-fed ruminant weighing between about 200 to about 400 pounds.

72. The method of claim 67, wherein said feed ingredient further comprises molasses.

73. The method of claim 72, wherein at least 0.5 pounds per day of molasses is provided to the ruminant.

74. The method of claim 67, wherein the ration is top-dressed with the calcium salt of 2-hydroxy-4-(methylthio)butanoic acid.

75. The method of claim 67, wherein the feed ration is formulated to provide between about 4 and about 30 pounds of feed ingredients and between about 0.1 to about 50 grams of calcium salt of 2-hydroxy-4-(methylthio)butanoic acid per day.

76. The method of claim 75, wherein the feed ration is provided to a growing ruminant weighing between about 400 and about 1000 pounds.

77. The method of claim 75, wherein the feed ration is formulated to provide between about 8 and about 24 pounds of feed ingredients per day.

78. The method of claim 77, wherein the feed ration is provided to a growing ruminant weighing between about 400 and about 800 pounds.

79. The method of claim 75, wherein the feed ration is formulated to provide between about 4 and about 12 pounds of feed ingredients per day.

80. The method of claim 79, wherein the feed ration is provided to a growing ruminant weighing between about 200 and about 400 pounds.

81. The method of claim 67, further comprising determining the energy maintenance requirements of the growing ruminant.

82. The method of claim 67, wherein the feed ingredients collectively satisfy the nutritional requirements for methionine.

83. The method of claim 67, wherein the feed ingredients collectively do not satisfy the nutritional requirements for methionine.

84. A process of formulating a feed ration for growing ruminants, the process comprising:

determining the nutritional requirements of the growing ruminant;

determining the maintenance energy requirements of the growing ruminant;

identifying one or more feed ingredients other than α-amino acid analogs and determining the nutritional content and energy contribution of each of said feed ingredients;

formulating a feed ration from the identified feed ingredients such that the amount of feed ration which can be consumed by the growing ruminant in one day can collectively satisfy the ruminant's daily nutrient requirements, and exceed its daily maintenance energy requirements; provided that such assortment and composition may not necessarily satisfy the growing ruminant's methionine requirements; and

additionally incorporating into the feed ration an α-amino acid analog without regard to its energy contribution to the feed ration.

85. The process of claim 84, wherein the α-amino acid analog is incorporated in the feed ration in an amount to provide between about 0.1 and 50 grams of the α-amino acid analog per day.

86. The process of claim 84, wherein the α-amino acid analog is incorporated in the feed ration in an amount to provide between about 1 and 25 grams of the α-amino acid analog per day.

87. The process of claim 84, wherein the α-amino acid analog is selected from the group consisting of 2-hydroxy-4-(methylthio)butanoic acid, and salts, esters, amides, ethers, diesters, ester/ethers, oligomers, metal chelates, and anion salts thereof.

88. The process of claim 84, wherein the feed ration comprises at least 50% forage ingredients.

89. The process of claim 84, wherein the feed ration comprises at least 80% forage ingredients.

90. The process of claim 84, wherein the α-amino acid analog comprises 2-hydroxy-4-(methylthio)butanoic acid.

91. The process of claim 84, wherein the α-amino acid analog comprises the isopropyl ester of 2-hydroxy-4-(methylthio)butanoic acid.

92. The process of claim 84, wherein the α-amino acid analog comprises the tertiary butyl ester of 2-hydroxy-4-(methylthio)butanoic acid.

93. The process of claim 84, wherein the feed ration satisfies the nutritional requirements for methionine.

94. The process of claim 84, wherein the feed ration does not

satisfy the nutritional requirements for methionine.

95. A feed ration for growing ruminants comprising:
one or more feed ingredients and an α-amino acid analog;
wherein the feed ration comprises at least 50% forage;
wherein the α-amino acid analog is selected from the group consisting of 2-hydroxy-4-(methylthio)butanoic acid, and salts, esters, amides, ethers, diesters, ester/ethers, oligomers, metal chelates, and anion salts thereof; and the salt, ester, amide, ether, oligomer, metal chelate, and anion salt analogs of methionine; and
wherein the salts of 2-hydroxy-4-(methylthio)butanoic acid are selected from the group consisting of ammonium, magnesium, lithium, sodium, potassium, and zinc;
the feed ration being formulated such that an amount of feed ration that is capable of being consumed by a growing ruminant in a day satisfies the ruminant's daily nutritional requirements, and exceeds its daily maintenance energy requirements; provided that such assortment and composition may not necessarily satisfy the growing ruminant's methionine requirements.

96. The feed ration of claim 95, wherein the α-amino acid analog is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, n-pentyl, isopentyl, -hexyl, and isohexyl esters of 2-hydroxy-4-(methylthio)butanoic acid.

97. The feed ration of claim 95, wherein the α-amino acid analog is selected from the group consisting of methylamide, dimethylamide, ethylmethylamide, butylamide, dibutylamide, butylmethylamide, alkyl ester of N-acyl methioninates, and

alkyl N-acetyl methioninate amides of 2-hydroxy-4-(methylthio)butanoic acid.

98. The feed ration of claim 95, wherein the α-amino acid analog is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, butyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, pentyl, n-pentyl, isopentyl, hexyl, and isohexyl ethers of 2-hydroxy-4-(methylthio)butanoic acid.

99. The feed ration of claim 95, wherein the ester group of the ester/ether of 2-hydroxy-4-(methylthio)butanoic acid is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, n-pentyl, isopentyl, n-hexyl, and isohexyl esters and the ether group of the ester/ether of 2-hydroxy-4-(methylthio)butanoic acid is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, n-pentyl, isopentyl, n-hexyl, and isohexyl ethers.

100. The feed ration of claim 95, wherein the α-amino acid analog is selected from the group consisting of zinc, copper, cobalt, manganese, calcium, iron, or magnesium chelates of 2-hydroxy-4-(methylthio)butanoic acid.

101. The feed ration of claim 95, wherein the α-amino acid analog comprises 2-hydroxy-4-(methylthio)butanoic acid.

102. The feed ration of claim 95, wherein the α-amino acid analog comprises the isopropyl ester of 2-hydroxy-4-(methylthio)butanoic acid.

103. The feed ration of claim 95, wherein the α-amino acid

analog is selected from the group consisting of zinc, copper, cobalt, manganese, calcium, iron, or magnesium chelates of 2-hydroxy-4-(methylthio)butanoic acid.

104. The feed ration of claim 95, wherein the metal chelate of 2-hydroxy-4-(methylthio)butanoic acid comprises the zinc chelate.

105. The feed ration of claim 104, wherein the molar ratio of 2-hydroxy-4-(methylthio)butanoic acid to zinc is between about 1.5:1 to about 2.5:1.

106. The feed ration of claim 95, wherein the anion salt of 2-hydroxy-4-(methylthio)butanoic acid is selected from the group consisting of zinc, copper, cobalt, manganese, calcium, iron, or magnesium anion salts.

107. The feed ration of claim 106, wherein the anion salt of 2-hydroxy-4-(methylthio)butanoic acid comprises the zinc anion salt.

108. The feed ration of claim 107, wherein the ratio of 2-hydroxy-4-(methylthio)butanoic acid to zinc is between about 0.5:1 to about 1.5:1.

109. The feed ration of claim 95, wherein the α-amino acid analog is selected from the group consisting of ammonium, magnesium, calcium, lithium, sodium, potassium, and zinc salts of methionine.

110. The feed ration of claim 95, wherein the α-amino acid analog is selected from the group consisting of methyl, ethyl,

n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, n-pentyl, isopentyl, -hexyl, and isohexyl esters of methionine.

111. The feed ration of claim 95, wherein the α-amino acid analog is selected from the group consisting of methylamide, dimethylamide, ethylmethylamide, butylamide, dibutylamide, butylmethylamide, alkyl ester of N-acyl methioninates, and alkyl N-acetyl methioninates of methionine.

112. The feed ration of claim 95, wherein the α-amino acid analog is selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tertiary butyl, n-pentyl, isopentyl, -hexyl and isohexyl ethers of methionine.

113. The feed ration of claim 95, wherein the α-amino acid analog is selected from the group consisting of zinc, copper, cobalt, manganese, calcium, iron, or magnesium chelates of methionine.

114. The feed ration of claim 95, wherein the metal chelate of methioinine comprises the zinc chelate of methionine.

115. The feed ration of claim 114, wherein the molar ratio of methionine to zinc is between about 1.5:1 to about 2.5:1.

116. The feed ration of claim 95, wherein the α-amino acid analog is selected from the group consisting of zinc, copper, cobalt, manganese, calcium, iron, or magnesium anion salts of methionine.

117. The feed ration of claim 116, wherein the anion salt of methionine comprises the zinc anion salt of methionine.

118. The feed ration of claim 117, wherein the ratio of methionine to zinc is between about 0.5:1 to about 1.5:1.

119. The feed ration of claim 95, wherein the analog of methionine is selected from the group consisting of the isopropyl ester, and tertiary butyl ester of methionine.

120. The feed ration of claim 95, wherein the α-amino acid analog is incorporated in the feed ration in a quantity to provide the ruminant about 0.1 and 50 grams of α-amino acid analog per day.

121. The feed ration of claim 95, wherein the α-amino acid analog is incorporated in the feed ration in a quantity to provide the ruminant about 1 and 25 grams of α-amino acid analog per day.

122. The feed ration of claim 95, wherein the α-amino acid analog is incorporated in the feed ration in a quantity to provide the ruminant about 5 and 20 grams of α-amino acid analog per day.

123. The feed ration of claim 95, wherein between about 4 and about 30 pounds of the feed ration comprises between about 0.1 to about 50 grams of α-amino acid analog.

124. The feed ration of claim 95, wherein between about 4 and about 30 pounds of the feed ration comprises between about 1 to about 25 grams of α-amino acid analog.

125. The feed ration of claim 95, wherein between about 4 and about 30 pounds of the feed ration comprises between about 5 to about 20 grams of α-amino acid analog.

126. The feed ration of claim 95, wherein between about 4 and about 30 pounds of the feed ration comprises between about 0.1 to about 50 grams of α-amino acid analog.

127. The feed ration of claim 95, wherein between about 4 and about 12 pounds of the feed ration comprises between about 1 to about 25 grams of α-amino acid analog.

128. The feed ration of claim 95, wherein between about 4 and about 12 pounds of the feed ration comprises between about 5 to about 20 grams of α-amino acid analog.

129. The feed ration of claim 95, wherein between about 4 and about 30 pounds of the feed ration comprises between about 10 to about 18 grams of α-amino acid analog.

130. The feed ration of claim 95, wherein the formulated feed ration is a daily feed ration comprising between about 4 and about 12 pounds of feed ingredients and between about 0.1 to about 50 grams of α-amino acid analog.

131. The feed ration of claim 95, wherein between about 8 and about 24 pounds of the feed ration comprises between about 0.1 to about 50 grams of α-amino acid analog.

132. The feed ration of claim 95, wherein between about 8 and about 24 pounds of the feed ration comprises between about 1

to about 25 grams of α-amino acid analog.

133. The feed ration of claim 95, wherein between about 8 and about 24 pounds of the feed ration comprises between about 5 to about 20 grams of α-amino acid analog.

134. The feed ration of claim 95, further comprising a lysine analog.

135. The feed ration of claim 134, wherein the lysine analog is selected from a the group consisting of lysine salts, amides, esters, ethers and oligomers.

136. The feed ration of claim 135, wherein the amount of lysine analog and the methionine analog is incorporated in the feed ration such that the ratio of the lysine analog to methionine analog available for absorption by the ruminant is between about 1:1 to about 5:1.

137. The feed ration of claim 95, comprising at least 60% forage ingredients.

138. The feed ration of claim 95, comprising at least 70% forage ingredients.

139. The feed ration of claim 95, further comprising molasses.

140. The feed ration of claim 95, wherein an amount of feed ration that is capable of being consumed by a ruminant in a day comprises at least 0.5 pounds of molasses.

141. The feed ration of claim 95, wherein an amount of feed

ration that is capable of being consumed by a ruminant in a day comprises between about 1 to about 7 pounds of molasses.

142. The feed ration of claim 95, wherein the ratio of forage to molasses feed ingredients in the ration is between about 20:1 to about 1.5:1.

143. The feed ration of claim 95, wherein the feed ration satisfies the nutritional requirements for methionine.

144. The feed ration of claim 95, wherein the feed ration does not satisfy the nutritional requirements for methionine.

145. A feed ration for growing ruminants comprising:

one or more feed ingredients and the calcium salt of 2-hydroxy-4-(methylthio)butanoic acid;

wherein the feed ration comprises at least 80% forage; and

the feed ration being formulated such that an amount of feed ration that is capable of being consumed by a growing ruminant in a day satisfies the ruminant's daily nutritional requirements, and exceeds daily maintenance energy requirements of a growing ruminant; provided that such assortment and composition may not necessarily satisfy the growing ruminant's methionine requirements.

146. The feed ration of claim 145, wherein the calcium salt of 2-hydroxy-4-(methylthio)butanoic acid is incorporated in the feed ration in a quantity to provide the ruminant about 0.1 and 50 grams of α-amino acid analog per day.

147. The feed ration of claim 145, wherein the formulated feed

ration is a daily feed ration comprising between about 4 and about 30 pounds of feed ingredients and between about 0.1 to about 50 grams of calcium salt of 2-hydroxy-4-(methylthio)butanoic acid.

148. The feed ration of claim 145, further comprising molasses.

149. The method of claim 145, wherein an amount of feed ration that is capable of being consumed by a ruminant in a day comprises at least 0.5 pounds of molasses.

150. The feed ration of claim 145, wherein the feed ration satisfies the nutritional requirements for methionine.

151. The feed ration of claim 145, wherein the feed ration does not satisfy the nutritional requirements for methionine.